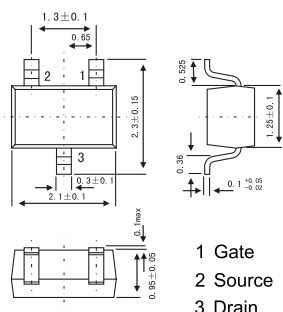


RoHS
Compliant



Features

- V_{DS} (V) = 60V
- I_D = 0.34 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 1.6 Ω (V_{GS} = 10V)
- $R_{DS(ON)}$ < 2.5 Ω (V_{GS} = 4.5V)
- ESD Protected

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current (Steady State)	$T_a=25^\circ\text{C}$	I_D	310	mA
	$T_a=85^\circ\text{C}$		220	
Continuous Drain Current ($t < 5$ s)	$T_a=25^\circ\text{C}$		340	
	$T_a=85^\circ\text{C}$		240	
Pulsed Drain Current ($t_p = 10$ μ s)		I_{DM}	1.4	A
Gate-Source ESD Rating		ESD	900	V
Power Dissipation	Steady State	P_D	280	mW
	$t < 5$ s		330	
Thermal Resistance. Junction- to-Ambient	Steady State	R_{thJA}	450	$^\circ\text{C/W}$
Thermal Resistance.Junction- to-Case	$t \leq 5$ s	R_{thJC}	375	
Lead Temperature for Soldering Purposes		T_L	260	$^\circ\text{C}$
Junction Temperature		T_J	150	
Storage Temperature Range		T_{stg}	-55 to 150	

Electrical Characteristics Ta = 25°C

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250μA, V _{GS} =0V	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V, T _J =25°C			1	uA
		V _{DS} =60V, V _{GS} =0V, T _J =125°C			500	
		V _{DS} =50V, V _{GS} =0V, T _J =25°C			0.1	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±10	uA
		V _{DS} =0V, V _{GS} =±10V			±450	
		V _{DS} =0V, V _{GS} =±5V			±150	
Gate Threshold Voltage (Note.1)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1		2.5	V
Static Drain-Source On-Resistance (Note.1)	R _{DS(on)}	V _{GS} =10V, I _D =500mA		1.19	1.6	Ω
		V _{GS} =4.5V, I _D =200mA		1.33	2.5	
On State Drain Current	I _{D(on)}	V _{GS} =4.5V, V _{DS} =5V	30			A
Forward Transconductance (Note.1)	g _{FS}	V _{DS} =5V, I _D =200mA		80		ms
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =20V, f=1MHz		24.5		pF
Output Capacitance	C _{oss}			4.2		
Reverse Transfer Capacitance	C _{rss}			2.2		
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =200mA		0.7		nC
Threshold Gate Charge	Q _{gT}			0.1		
Gate Source Charge	Q _{gs}			0.3		
Gate Drain Charge	Q _{gd}			0.1		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =25V, I _D =500mA, R _G =25Ω (Note.2)		12.2		ns
Turn-On Rise Time	t _r			9		
Turn-Off DelayTime	t _{d(off)}			55.8		
Turn-Off Fall Time	t _f			29		
Maximum Body-Diode Continuous Current	I _s				0.25	A
Diode Forward Voltage	V _{SD}	I _s =0.2A, V _{GS} =0 V, T _J = 25°C		0.8	1.2	V
		I _s =0.2A, V _{GS} =0 V, T _J = 85°C		0.7		

Note.1:Pulse Test: pulse width ≤ 300us, duty cycle ≤ 2%

Note.2:Switching characteristics are independent of operating junction temperatures

Typical Characteristics

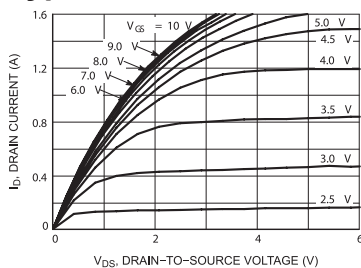


Figure 1. On-Region Characteristics

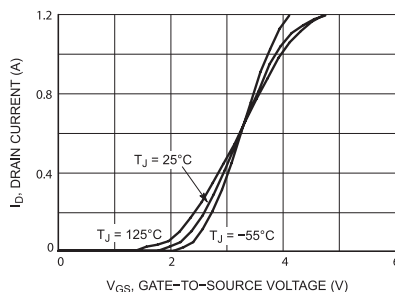


Figure 2. Transfer Characteristics

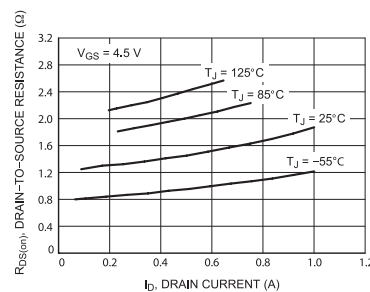


Figure 3. On-Resistance vs. Drain Current and Temperature

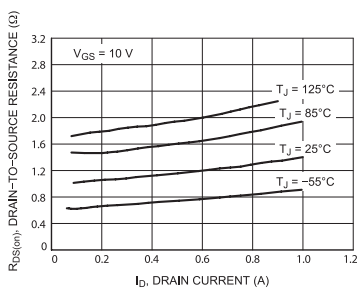


Figure 4. On-Resistance vs. Drain Current and Temperature

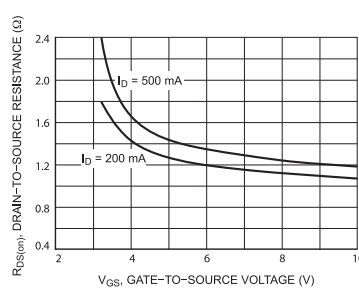


Figure 5. On-Resistance vs. Gate-to-Source Voltage

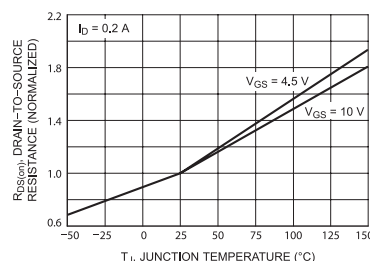


Figure 6. On-Resistance Variation with Temperature

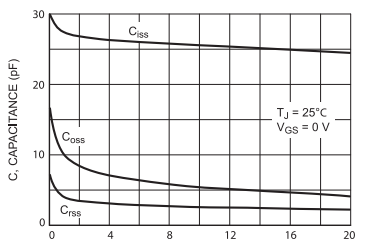


Figure 7. Capacitance Variation

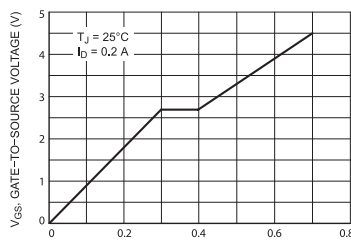


Figure 8. Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

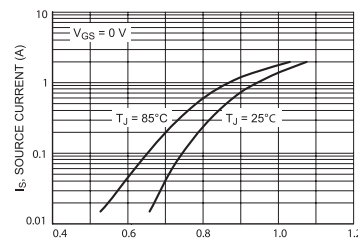


Figure 9. Diode Forward Voltage vs. Current

Part Number Table

Description	Part Number
N Channel Single MOSFET, SOT323, 60V, 0.34A	2N7002W

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